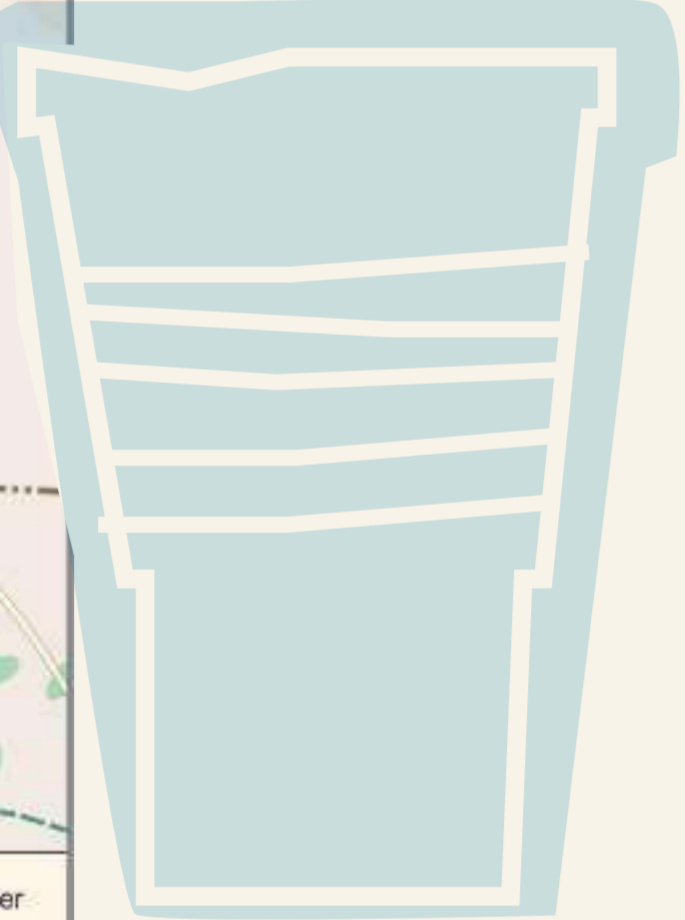
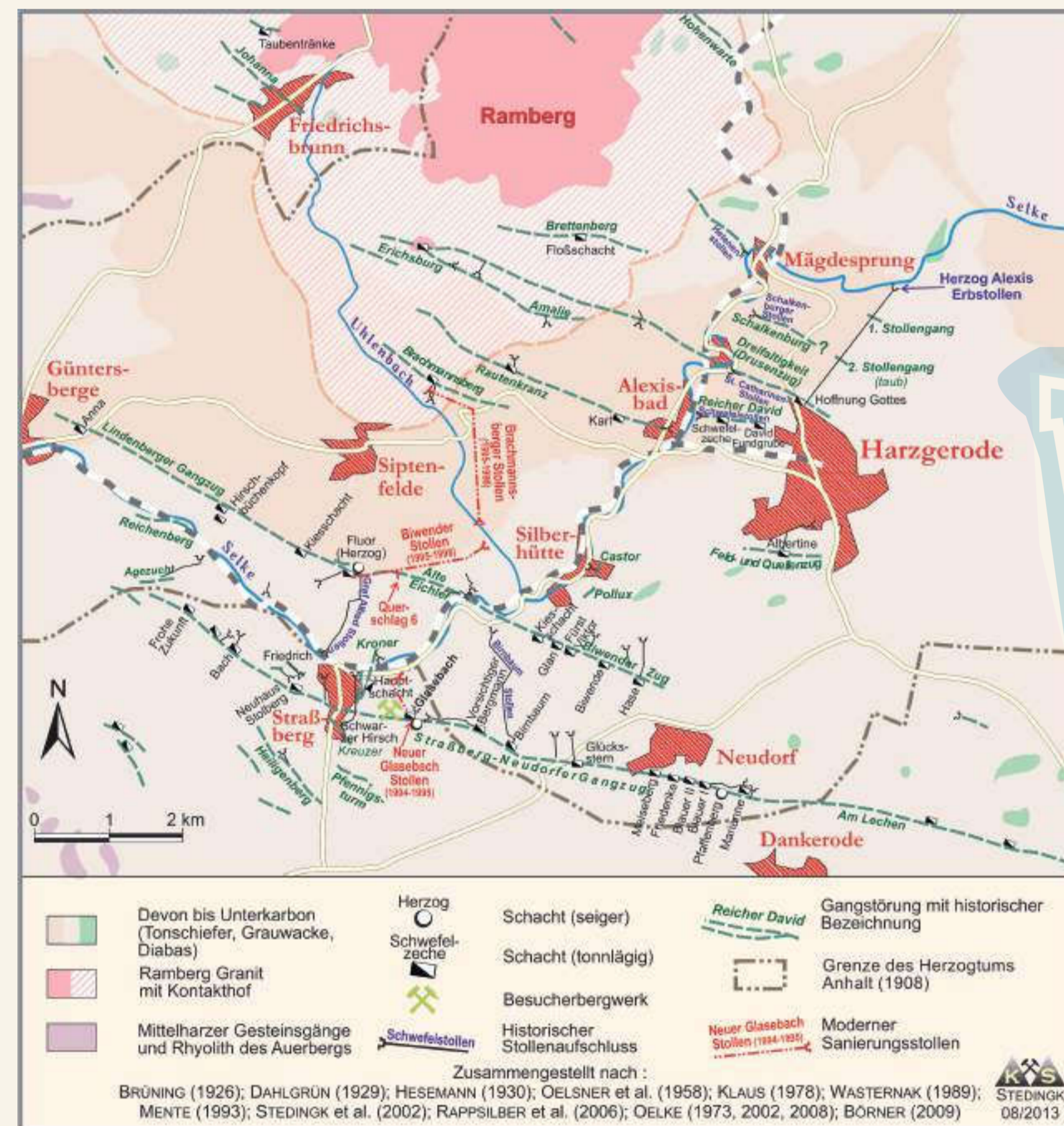
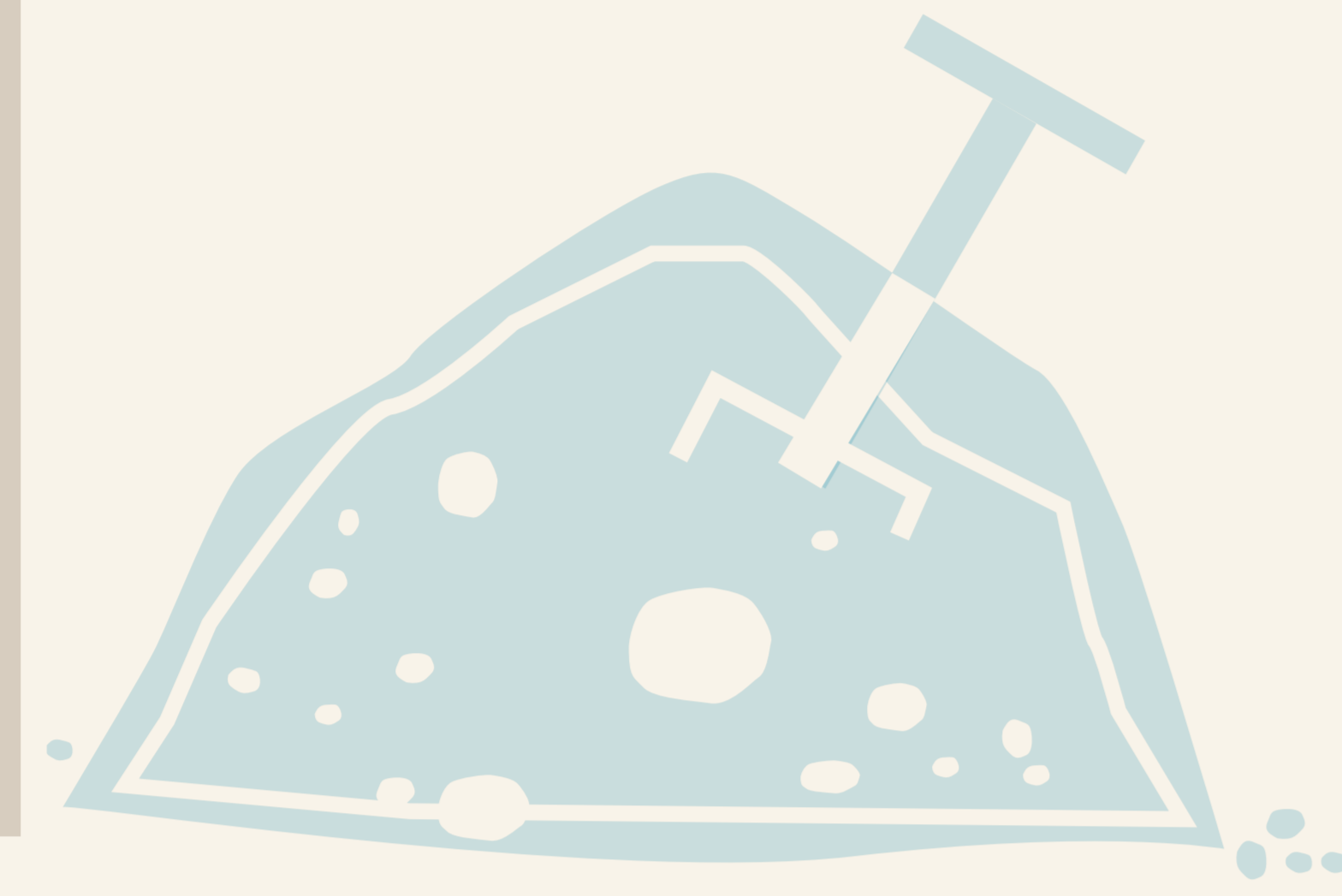


# Treasure hunt in the sea: the origins of the ore deposits around Neudorf



## What happens if you tip a bucket full of sand over the edge of a full bathtub?

If there are a few larger rocks, they will sink to the bottom immediately. The sand slides down and may swirl around. The smallest particles, on the other hand, float in the water for a while and sink down very slowly. This is how the deposition of the rocks around Neudorf can be visualised. Instead of buckets, rivers poured all kinds of cobble and sand into a huge bathtub - the sea. What quickly sank to the bottom and slid down the slope became mighty sandstones typical of the Harz Mountains: greywacke. The light particles were transported by currents and trickled down far from the coast. Today these are slate.



## What happens when you crush a thin plastic cup?

It folds and bends. If it is squeezed particularly hard, small cracks can even appear. Liquids flow out through the cracks in the cup. The rock directly beneath us has also been subjected to stress. When it was formed over 300 million years ago and lay deep beneath the earth's surface, the forces of the earth tugged at it. It was bent and broken and a mountain range was formed. Neudorf lies on such a geological fault. Fluids were able to flow in the underground through cracks in broken bedrock.

Geology and mining in the Lower Harz. Map: Stedding, K., Ließmann, W. and Bode, R. (2016): Harz. Bergbaugeschichte, Mineralienschatze, Fundorte

## What happens if you put a wet sponge on your hand?

The sponge releases water and your hand gets wet. Instead of being evenly distributed, the water collects in the creases and spaces between your fingers. The bedrock underneath Neudorf had many crevices. In our example, the bedrock is the hand. The sponge is Neudorf's largest volcanic neighbour, the granite of the Ramberg massif. During its formation, it not only brought a lot of heat with it, but also created metal- and mineral-rich solutions. They rose through fissures and cracks in the rock and cooled down. In the process, valuable ores and minerals were deposited in the cavities. Millions of years after their formation, they were mined for centuries.



The most important ore mineral in Neudorf was **Galena**. Its German mining name, Bleiglanz (which can be translated to 'lead gloss'), reveals the raw material that can be extracted from galena. Lead is used in many different ways today. Lead batteries, for example, are indispensable in cars. However, Galena was of interest to Harz miners as the mineral can also contain silver.

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Miners called the iron ore **Siderite** 'steelstone' or 'iron spar'. No wonder, because almost half of the mineral consists of iron. Siderite is relatively soft and easy to smelt. Therefore it is a highly sought-after iron ore. As the main component of steel, iron is an indispensable part of our everyday lives.

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**Fluorite**, also known as fluorspar in mining terms, can take on all the colours of the rainbow. The often colourful, very soft mineral was mined in the Glasebach mine until the 1980s. Whether for the production of glass fibres, enamel, screeds, fillers or steel - the use of fluorite is very versatile.

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## What mineral treasures have been found underground around Neudorf?

A special feature of Neudorf is the occurrence of tungsten ore, which is not found elsewhere in the Harz Mountains. Early miners were not happy about this. They called the mineral **Wolf-ramite** 'ore-eater' as it had a negative impact on the smelting process and thus reduced the metal yield. Today, the element tungsten is important for steel refining.

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**Diversity of a special kind**  
Mining around Neudorf was not on the same scale as in the Upper Harz. Neudorf experienced its flowering time as a mining town in the 18th century. The two best-known shafts (Meiseberg and Pfaffenberg) were closed in 1903 as the deposits were completely depleted. Even though the Neudorf mining district was only of minor economic importance, it is still known to many geologists. The reason for this is the enormous variety of mineral types that can occur in spectacular forms along the so-called Straßberg-Neudorf vein system. A selection of the most important minerals around Neudorf is presented here.

**Sphalerite** was an important companion of Galena in the Neudorf district. Here, too, miners gave the mineral a suitable name: 'zinc glare'. With its high zinc content, Sphalerite is still the main source of industrial zinc extraction today. It is used, for example, as corrosion/rust protection, in batteries or in the construction industry.

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Map: Stedding, K. and Bode, R. (2016): Harz. Bergbaugeschichte, Mineralienschatze, Fundorte  
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# Discovery tour on the mining trail

## The two careers of Neudorf

Without mining, Neudorf would probably not exist. The ore deposits in the area attracted people. As old smelting sites have been found, it is assumed that mining was carried out here as early as the 10<sup>th</sup> century. In order to revitalise mining, the small settlement of 'Neudorf' was established in 1531 and grew very quickly. More and more mines were opened. Even (slightly) silver-bearing ores were found! However, after hundreds of years of mining, the ore deposits were depleted and mining was given up.

Neudorf's new career began and it gradually became a holiday resort. The Stahlquelle ('steel spring') in particular is considered a highlight and is visited by many guests. However, Neudorf's mining industry has not been forgotten. It has left numerous traces in the surrounding area. If you would like to discover these, you are in good hands on the mining trail. You can immerse yourself in the history of mining on a hike through the present-day landscape (approx. 15 km).



**1** Have you tried it yet? The water from the **Stahlquelle** ('steel spring') is safe to drink. However, it tastes like iron, as it flows through ferrous bedrock underneath. 'Steel stone' is what miners called the iron ore, which is how the spring got its name.

**2** The mining nature trail shares part of its route with the **HARZGERÖDER KUGELSPASS**. Interactive audio stations tell exciting stories about nature and mining in the region. The themed marble runs at the stations are fun for everyone.

**3** A 4.5 km long **narrow-gauge railway** connected the Neudorf ore mines with Silberhütte. It was constructed in 1886/87 and exclusively used for the transport of ores and work traffic until 1909. Its 18 large wagons could transport 45 tonnes of ore.

**4** Today you can relax and bathe at the **Birnbaumteich**. However, it was originally constructed as source of energy. The water was collected in the pond and drained in a controlled manner to move the water wheels in the Birnbaum and Pfaffenberg shafts.

**5** The **Heller Wasserkunst** (a pond, ditches and water wheels) once stood here. Today the water energy would be stored and transmitted via power cables. In the past, however, the energy was transmitted by means of 1 km-long wooden rods, which set the pumping system of the shafts in motion.

**6** At the **Glasebach mine** you can collect one of the 222 stamps along the hiking trails in the Harz Mountains ('Harzer Wandernadel'). It is also an important point of interest in the UNESCO-Geopark. Here, the world of mining can also be discovered during tours into the old mine.

**7** The **Pfaffenberg mine** was one of the most important mines near Neudorf. A special feature was the steam engine from 1823, which pumped 248 litres of water per minute out of the mine. The system was probably the first of its kind in the Harz mining industry!

**8** Today, hikers along the **Menschentrappe** usually have the Stahlquelle ('steel spring') as their destination. The market women (Butterfrauen), who are said to have passed this trail in older days, had a longer route. Legend has it that they used the hollow path on their way back from the Quecklinburg market to Dankerode.



Text: Esther Czernoch - design: design office - Agentur für Kommunikation GmbH, Bad Harzburg  
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